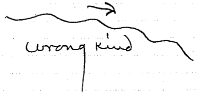
Edison Ore Milling Syndicate, Ltd., and Related Companies
Standard Construction Corporation, Ltd.
Pocket Notebook (1902-1904)

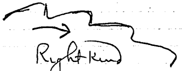
This pocket notebook was used mainly by Edison, probably during the period 1902-1904. Included are notes and drawings pertaining to the design and construction of the iron concentration plant at Dunderland, Norway, and to operations at Edison's cement works in Stewartsville, New Jersey. Many of the pages contain references to Edison's correspondence with William Simpkin, chief engineer of the Standard Construction Corp., Ltd. The flyleaf is inscribed "Sketch & rough notes for Simpkins." The cover is marked "Simpkins." The pages are unnumbered. Approximately 50 pages have been used.

WM. MANN CO.,
STATIONERS,
60 MAIDEN LANE,
NEW YORK.
No. 11

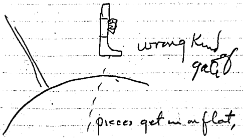
Sketch & rough
Notes for Pumpkins

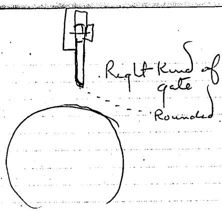
Roller feeds.



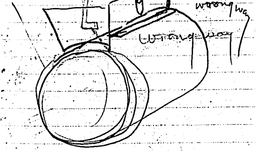


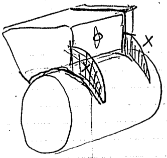
Corrugation


wrong kind of gate
pieces get in on flat,


Right kind of gate
Rounded

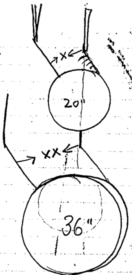
only an edge should be used & that rounded as shewn —


wrong way
wrong way



Right way

As feeds are now made after
ore leaves the gate it slides
off on the side when gate
very much open- we
put cheek pieces X X
Extension this prevents
going off sides



X is so narrow it chokes

XX no Choke

Can feed more with lower speed & the lower the speed & the more open the gate the more nearly does it feed the theoretical amount [illegible] the Belt bringing returns from Dryer to Crusher should have only such a speed as will give no more than 1 or 1½ inches of return over whole width Belt & reduce the speed to do this so a man can be stationed at Belt to act as a picker for bolts, spikes, drill heads etc, otherwise a link or pin will continue going its rounds till worn out — The returns will be greater in the soft winter months than summer on account of ice & mud making screening top dryer bad —

The position size and whole arrangement of the furnace at Dryer is good Cant be improved on Dries the wettest kind of ore perfectly —

Regular push buttons are a failure in mill from dust etc we have a one that works well in dust – you can order a sample any time —

The pyrometer should be placed in the box at the highest intake at one Corner farthest from intake and read 650 when ore is passing.

On the opposite side of
Each intake box at
Dryer the door should
have a hole cut in
with a slide on outside
where a strip of mica
Can be slid in & Easily
withdrawn to clean —
The flame can be seen
& in Case of a block
it can at once be seen
between what sections
the block is —

The speed of the fan is

______________ on top

of Dryer —

Dont forget the water for
bearings of Exhauster.
top Dryer gets very
hot —

Wood must not come
within 3 ft of Dryer
at floorsil - No wood
should be used on floors
where fan is, ours smoked

Motor driving conveyor from
Crushing plant should
get outside air into
Gunny Chamber
ditto Exhauster fan Motors

Gunny chambers are
a great success

Our bell system of
having a number of bells
throughout each section
of plant to warn men
when we start up & shut
down is no good we had

to adapt a distinctive
whistle on each plant
as at Edison - any man
Can ring bell in Engine
room + Engineer answers
by a whistle repeating
the signal -

~~the~~ Signals were changed
here supposed to be an
improvement had to be
changed as used at Edison
in fact most things - changed
+ improved upon + thought
to be better had to be given
up + the Edison device or
method used

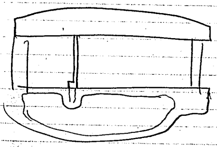
The ~~3~~ 1/2 inch screen
gave stuff unnecessarily
fine + too much returns
We changed to 3/4 slots in
Screens top Dryer - this gave

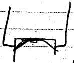
about 1/2 inch stuff — think you should use one inch screens dont use any thicker sheet than 1/16 thick if thicker is used its capacity goes down —

Carbon brushes should be ground to the same radius as the Commutator otherwise sparking on motors The Bergmann Motor brush is not a howling success without they are Eased up in the joints & the Carbons ground to the radius of the Commutator then fixed right they give fair satisfaction They are very much

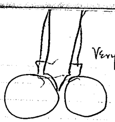
more complicated than
Genl Elec which we
have here + appear no
better if as good before
you close for motors with
Bergmann or anybody
Else Especially Bergmann
let me see the specifications
they are shy on something
+ are no good in a mill
where they receive no
attention whatever.
with their present bearings
The bearings we put on
with the new change are
all right with wool +
no felt I do not believe
there is a motor made
that is suitable for mill
purposes that is as good
as ours with present
Reservoir bearings =

Dont have a dead
End to a tunnel
under a block house
have opening at both
Ends for ventilation
Motors & machinery
rusts, Motors get wet
Etc





Shoulder for
large pieces.
on 3 High

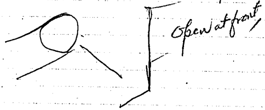

Very smooth inside or bridge
3 High —

All belts have Rubber angles —

~~Can use one inch screen cloth above 4 screens instead 3 as now if not too~~

Exhaust top Dryer pipe heavy now 1/8 — lagged gets very hot iron floor plenty swing windows

Water Cooled bearings -



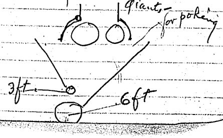
Roller feeds in
Dunderland Stock
houses not necess
use chutes & Control
Speed of belt by
Dynamo & Motor

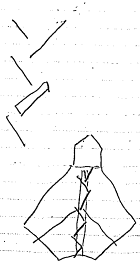
Dragon Teeth of plates
after S sends sketch

---

2 top floor of Dryer
should be all windows
all sides
other floor more
windows

Windlass & ratchet for
raising doors of
Rolls =


giants, for poking
3ft.
6ft



Rock Stock —

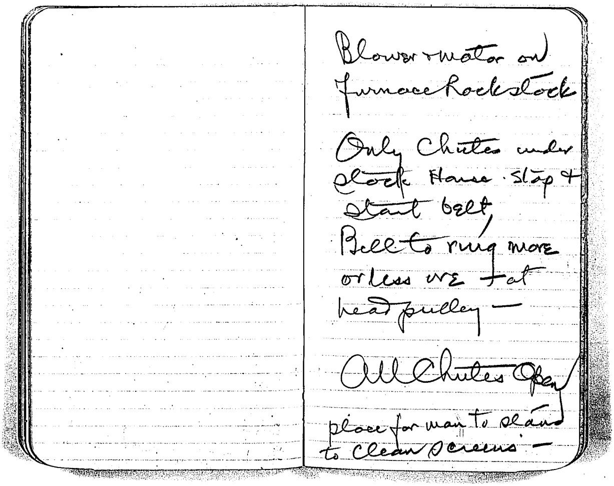
7·28

Must have return belt
from Dryer tongues
spalls back go slow
enough for picker man

1 Screen Higher might be
an advantage —

Links w/ Shaker +
improved safety Catch
on levers + thrust Collars

Open up Dryer bldg
on account heat,



Blower & motor on
Furnace Rock stock

Only Chutes under
Stock House. Stop &
Start belt,
Bell to ring more
or less wet at
head pulley —

All Chutes Open

place for man to stand
to clean screens —

~~36" Roll or rather 5 ft~~
~~roll Hoppers So Easily~~
~~Clean out ore when~~
~~stalled —~~

~~Windlass to raise~~
~~doors —~~

~~Blowers, Mount~~
~~baffle plates on a~~
~~seperate fixture &~~
~~slide in side etc~~
~~this permits adjustment~~
~~Roll longer.~~

All roller feeds driven from fans 6 fans on one motor ~~with~~ chance to change gears also on end of the long fan shaft drive rolled feed shaft by sproket permits a change of same —

flaps over mouth.

All Bergmann Motors have one pair of brushes under

~~The arms that Extend out the mill Must be shut down if any particular Brush under the arm has to be fixed. This is Hell—~~

~~Explain to S Rotten Worm & Special Worm & Cusington~~

Roller feed 1st 36
all open gear
Train same giant
dump roll —
No worms
If possible have
no pinion at bottom
of a gear as
gear casing
holds no oil to
speak off —
all gears below
50" dia Cast Casing

~~and arrange to have~~
~~same faces as near~~
~~as possible to save~~
~~Multiplicity patterns~~

All Previous
pages sent S
in Letter No 4 -

also Letter 5 about
bellied plates + new
proposed shearing
device ~~Sent~~ here by S.

not in letter 6
put it in later –

Small air compressor
gear+motor driven –

Had to plane out both
sides middle roll 3 H
Couldnt start,

Had put Hill starting
Clutch –

Drove Lilli air Compr. Gear + [illegible]

Walkway + guard
over ropes Hunter
send sketch

flooring with Cracks
ng – either a deep
match or thin iron
on wood countersunk lock
Lapped –

Letter No 6 Explains
all above except in brackets,

Hoppers below giant can be
of 1/2 to 5/8 sheet now
there being nothing big enough
to require heavy Hoppers:
this gives good chance to
cheapen & ~~[illegible]~~ & get handy
hoppers removing roll plates
& ore when blocked –

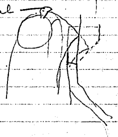
Think the driven Roll –
Could have a close grain
Cast instead chilled more
traction than chilled rolls
never danger of flat spot,

The Chilled Wheels are
on too tight should go
on easy but not tight
so easy removed if
soft spot develops

~~proportion wrong bet~~
~~Little & big roll~~ ✓

S deliverers at Blower
& screens horrible mistake
10 n' opening to carry
several hundred tons
angles all wrong ✓

Coal plant Elevators
awful



Short chain motors
on account Oil film slips
Make Knife Edges chain Not sent

~~Dont use worm on giant~~ ✓
~~Rolls feed - spur —~~

~~Cause of shake top floor~~
~~giants, is roller belt pulley~~ ✓
~~vibrating Cross I beam -~~
~~bldg not braced to stone —~~

Walkway bet Rolls Canvass
planned but top ways Herter

~~Leaking floors Bove~~ ✓
~~Sheet and double floors~~

~~Cutting door in steel~~ ✓
~~front 1st 36 Hopper —~~

~~Air compor had inc~~ ✓
~~Reservoir —~~

Letter No 8

Was only in regard to
3 High Housings for 5 ft
Rolls —

on gun - our reg bearings used with
oil plkt left off + grease cup
put on - pin holes in all links to
oil —

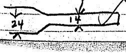
~~Suggest if possible wider
screens + spread stream
Top Dryer —~~

~~Provision on Roll feed 3 Highs
of gate so no [illegible] on starting
up —~~

Caro ~~chained links~~
~~dd Westpoint~~ Letter 7

Herter make sketch of
Hopper + roll now over
3 High —

Dont narrow spouts + chutes
where there is no necessity



bad —

~~Dryer furnace larger more~~
~~area way —~~
~~Links on Shaker —~~

Last 36 Rolls corrugtns not so
large + Castor ground flat —

Post him about Contracted
Chute + strike plate +
How we fixed Chute under
Chack 3 High, fixed 6 times
Heater ~~Send a sketch~~ at Rolls of mouth

~~Say that we did what he~~
~~stated in his letter of Sept 2~~
~~Regarding Giant Bearings —~~
~~We also rebabitted with our~~
~~Reg. Babbitt, Giants run~~
~~Cold now —~~

~~Tell him [illegible]~~
~~letters —~~

Tell him abt open circuits
& sparks,

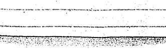
~~See letter Sept 1~~
~~Springs ~~do not use~~ are all right~~
~~But fix one of the bearings~~
~~+ make Housing many times~~
~~stronger than 3 High Chalk.~~

~~Tell S about calling~~
~~up my sketches that~~
~~Bill saw originals –~~

Heavy Motor shafts,

Shear on both gears

Long bearing 5 ft rolls



How about over hung pinions on
Motors, chatter nicked spark we
agreed on separate pinion & bearings
& Coupled Motor –

Shot chain – Try with ice around
oil film on shaft – Jaynes dodge
no settling pocket,

Doubt if we get 60% efficiency on 3 H
Rolls without making a lot of fines
think we shldn't go above 40 percent,
hence the returns will be very heavy
& think 36 belt will be overloaded –
there would be about 930 tons
of Course we can ~~cannot~~ get 60%
but it will have the objectionable
fines & say that 540 tons on our
belt was a mistake as we assumed
skips had 6 tons when on weighing
them only weighed 5 tons so a correction
should be made in addition with the
amount we had the belt was very

~~wavy between the idlers – I should say that with idlers present distance apart 400 tons of Dunderland would be as much as a 24 belt should do & on inclines – the stretch on belt will cause it to be taken up very often, altogether I should say put in the 48 inch belt, 8 ply instead of 6 ply –~~

~~Its the length of the chains & weight that Counts, when the depth of immersion is the same, the trouble is film of oil on shaft weight not enough to cut thro it Jayne sharpened the Edges then it Cut through & did work but if surface too great there is film on thick oil & chains stands still~~

Herter sketch!

~~Call attention to bottom of~~
~~Conveying belt dropping stuff~~
~~below & we had put Xtra floor -~~
~~Ele why not raise bottom up as there is~~
~~space bet & floor~~
~~Say grinding chamber should be~~
~~on [illegible] outside as~~
~~dust is some place bad outside~~

~~Of course its good idea to~~
~~have great Extra Capacity in CP~~
~~but then 10 Hour biz wont do,~~
~~as we should have to wk mine only~~
~~10 hours or have a very Expensive~~
~~Car storage / our mine must~~
~~work 20 hours.~~

~~Say that need not grind Corrugations~~
~~3 High - Cast them so there is~~
~~Clearance 1/8 inch - show new~~
~~plate Corrugations - also new~~
~~Roller feed~~ ~~Guards~~ 3 High with
governor / tell how trouble
with our spouts Chalk +
new arrangement mouth spouts

~~+ how S. dumps over our~~
~~screen had be (all chgd) -~~
~~also about taking Care larger~~
~~amount ore at 1st S + 2nd S etc~~

~~Scraped point perhaps wider~~
~~than S got it.~~
~~Cast now don't cost much higher~~
~~to get larger chain~~

All above in letter
No 9 —

Giant ~~14~~ 16 bottom to bottom 16
1st S 6 "
2nd ~~2~~ 3
3rd 1½
4th - just as close as you can get
them without plates striking -

Not in letter 10

~~you can feed your blowers 25 ton~~
~~of [illegible]~~ it will be difficult
to say how much you can feed
your blowers ~~[illegible]~~ per hour —
The stuff is fine & unlike our
I think ~~[illegible]~~ Batcheller should determine
that at Orange on Reg blowers.

Speak about Roller feed weigh
house.

Cornish — Letter 10

Speak about the pinion
bearings on the 5 ft rolls; —
has to shear & tendency is
to give powerful thrust in bearings
wiping babbitt of too small dia
& tearing out bearings — That the
shaft should be as large as
can make it & bearings ample &
well secured — also

Letter 10

about practicability of having gears fastened by shear pins & ~~Bronze~~ bush for future Castle repairs, bolts used at 1st ~~last~~ shear holes until necessity of using them is known

5 dump spouts to blowers Wentwork must have Roller feeds at top, Letter 10

Say that I am in doubt & think it very dangerous to use holes to feed ore to blowers - but after blown it will be ok - Could we be sure that the ore would always be dry & there was no~~thing~~ Calcite horses in ore it might answer but with any

high efficiency in 3 High it
is doubtful if holes will
work

~~[illegible]~~ I have been sweating blood
over spouts delivering to roller feeds
at Chalk blower we have been
working at it 2 weeks, several times
we thought it was ok but when
the rolls got proper pressure & rock
segregated in Byaux so we got
Excess fines till the spouts plugged
notwithstanding we have put separate
spouts & raised the angle

~~[illegible]~~ WE are now making
a radical change to do away
with solidly filled pipes where the
pressure briquettes the ore into a
solid immovable Column
This is the device.

Sketch ^

all in Letter 10

Letter 11

Let 10

Spoke about 4 way spouts
in Rock stock,

Say that 24 return belt
from Dryer to rolls will be
ample but distribute it
fairly well – ~~4 or 5/8 bolts~~
~~[illegible] [illegible] but~~
~~larger pieces~~ do & these
~~Cast~~ say that bolts etc
are easily seen & picked –

Say that the distributor top
of Dryer is very important &
should be exactly imitated ours
works well – if not bad drying
Clogging –

Grind Roll plates chilled
full inch –

S wants data as to power on
all kinds Conveyors lighter
loaded — Harte —

~~Speak about Chutes Rock Stk
too low down had cut them
all off 100 Tons maximum
Takes several hours get
Water out tunnel —~~

~~Brick doors no iron in
Dryer furnaces — Either fire or air doors — also brick
door acts as iron outside
not exposed to radiation —
No wrot iron around heat~~

What about Motors. better
redesign bearings. also wider
base — also arms s/o all brushes
~~Can be fixed while running
Dust Chambers Use entirely
hand fans — Look out leaks.
trouble crossing fields bad leaks~~

~~Brushholders~~ Carbon holders
spark if made too loose and
not bind, if loose Carbon must
be ground to Contour —

Regulate belt under stock
hopper by Sep Dynamo & Motor,

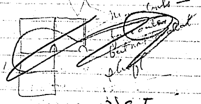
Give him details Roller feed
large check 3 Height of goods
ok —

~~[illegible]~~ Biller design the baffle
plate for blower ~~& send to Drawing~~
to ~~[illegible]~~ us ~~of~~ Lab so can
make one above Bil try it
actually —

Chute [illegible] check 3
It still [illegible] up straight
2 for [illegible] —

Delivery points 20 angle high Elevator

plates in Giant should be equal so exchanged to get wear —



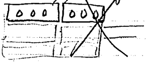
21" Each no odd Section

~~Holes in mandril must be laid out quite accurate so plates can be exchanged — Use washers under bolts 1/4 thick No fins due to punching~~ ~~on washer~~

~~Run facing strip down to shaft & only face the outside...~~

~~big fillet on bolts for plates otherwise bust~~

~~allow full 1/2" between plates~~

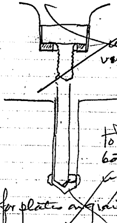


~~8 bolts to Each plate This gives us larger bolter teeth & Makes symmetrical —~~ ~~gives more metal at outer Edge,~~ ~~Carry the outer & inner edges clean across plate, so will strengthen & will be good when plates changed —~~

~~Dont have the cored holes in mandril. There is only 6½ inches across the Key to Core — something might happen — it only saves 5 lbs of metal on a roll & this is not a saving as it radius gives it considerable Kinetic Value —~~

~~in Key where plates go make a very good fillet in bottom~~

Make



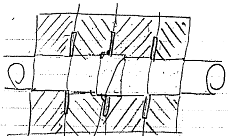
~~washer to give very large fillet,~~

~~To sweep out bottom to top Easy using radial drill —~~

~~for plates as joints —~~

The Lock sheets on bolts.

Should be 1/16 lower + not come flush with top —



best way — think 1/16 Variation in sizes of shaft plenty + will be cheaper —

— Case press when hard it goes with jump sometimes + goes beyond —

Dont use Thrust Collar on both ends — only on opposite end from Engine —

Motor + head pulley bringing stuff from Rolls to Blower shakes horribly Look out for your head pulleys + Drive on the Conveyors through trusses —
I beam stuff for bearings head pulleys hard to line —

No ~~1~~ :

007 - bearing how about chain scraping & wiping oil where it goes thro hole —

No 2

Are you going to bore out head pulley bearing babbit & then rebore to make shaft fit bearing without scraping —

Heaviest chain can use

This order is — No 3

~~Tell him about ch the Elevator ditto 5 =~~

~~Also about the Coupling of 3 H to be secured to shaft so no shift & heat at Collars —~~

Number all things hereafter,

All back of this crossed off in Letter 11 — sent Giant details & drawings by Hunter in Letter 11 ==

~~300 Speak about Each guide rope sheave 3 High adjust & at proper angle — Say the angling of others made the wrong~~

~~Breaking lever of shaker~~
~~301 Bottom bearing.~~

~~# Centrifugal gov on Giant Ex ball poly ng —~~

B

above in Letter 12

~~Speak about light chain on Malin
getting twist in Jam, don't know
how - find out if bearing pinched
when chain twisted -~~

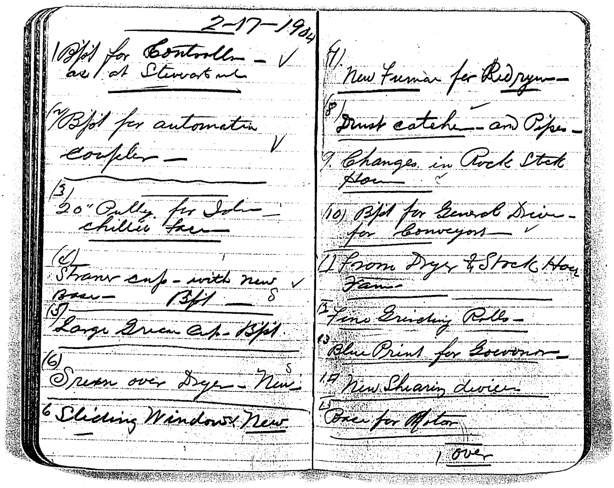
~~Speak about stored power at
present speed Grant not enough
for extra size rox - that his
shaved have proportionate speed.
to Grant at 5 as rox larger
150 Rev at least,~~

~~Speak about collar on
stuffing box - breaking
Cotter + Shaft of Mater
Screwing it up by wool
until it pinch shaft
+ blow fuse.~~

Letter No 13 sent
in Re 5 ft + shaker
drawings — Oct 29th -

Letter 14 mailed Nov 8
about chutes + 5 comm
over also about no iron
on fire doors Dryer -

Letter 15 about
photos of Chute Expmt.



2-17-1904

1 B/pt for Controller — ✓
as at Stewart mill

(2 B/pt for automatic
coupler — ✓

(3)
20" Pulley for Idler —
chiller fan —

(4)
Strainer cup - with new ✓
Base — B/pt — S

(5)
Large Green Cup - B/pt.

(6)
Screen over Dryer - New S

6 Sliding Windows & New

(7).
New Furnace for Redryer —

(8)
Dust catcher — and Pipes —

9. Changes in Rock Stock
House ✓

(10) B/pt for General Drive —
for Conveyors — ✓

11 From Dryer & Stock House
Fan —

12 Fine Grinding Rolls —

13 Blue Print for Governor —

14 New Shearing device —

15
Base for Motor

over

(Lamp Guard)

Bp't for Shaker Shafts and connection 89